FIG.1

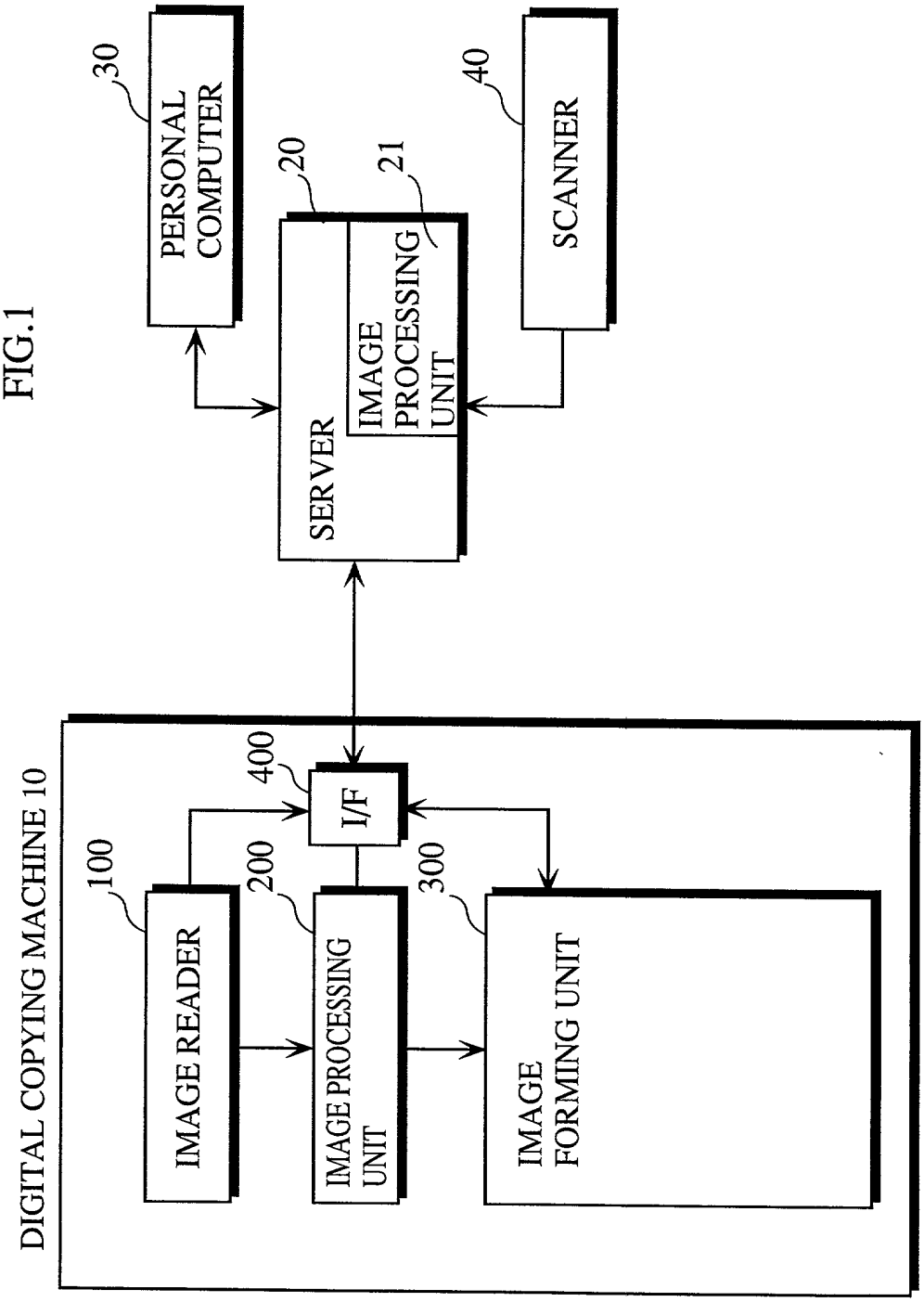

30
PERSONAL COMPUTER
20
21
SERVER
IMAGE PROCESSING UNIT
40
SCANNER
400
I/F
DIGITAL COPYING MACHINE 10
100
IMAGE READER
200
IMAGE PROCESSING UNIT
300
IMAGE FORMING UNIT

FIG.2

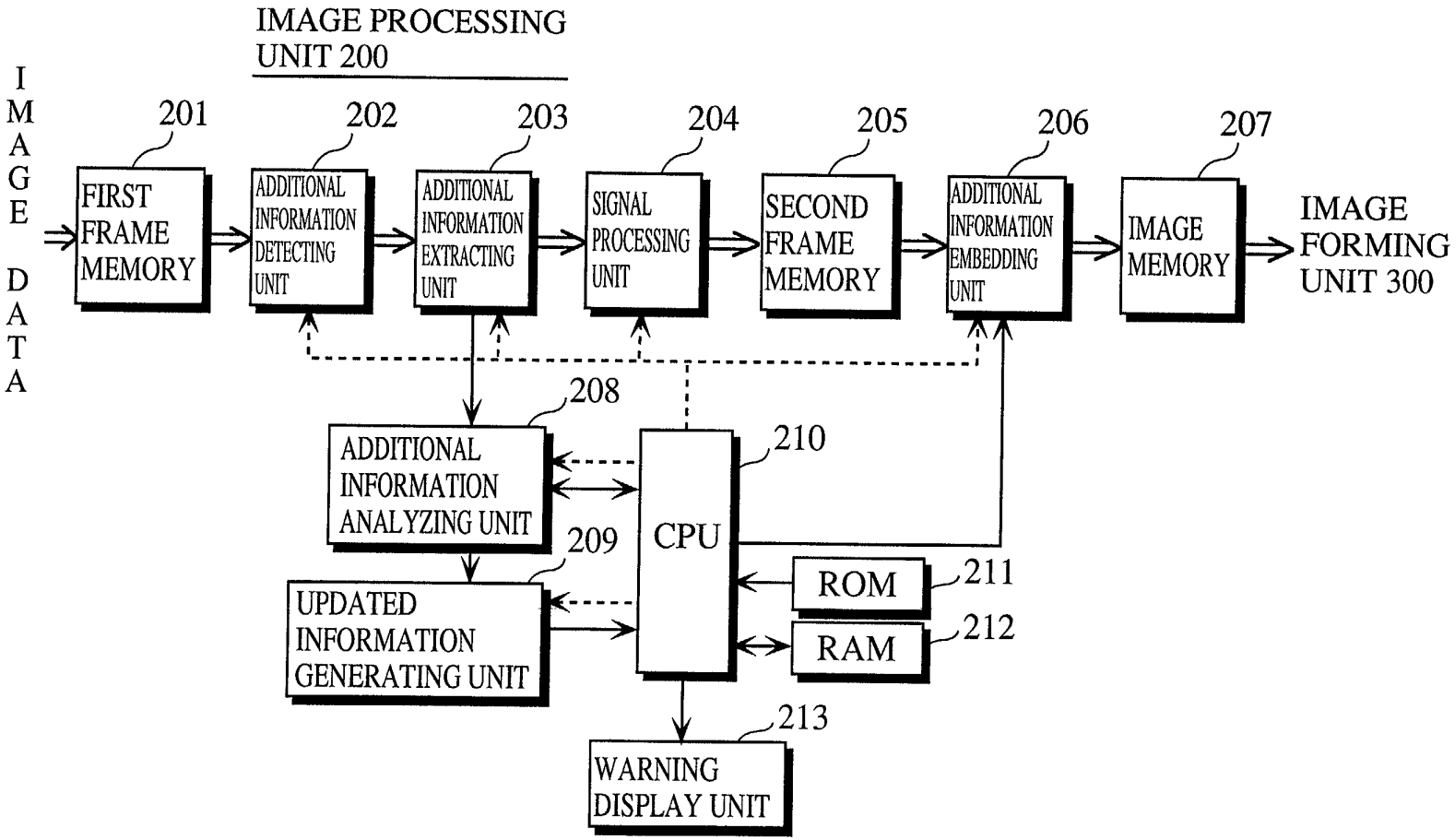


IMAGE PROCESSING UNIT 200
IMAGE DATA
201
FIRST FRAME MEMORY
202
ADDITIONAL INFORMATION DETECTING UNIT
203
ADDITIONAL INFORMATION EXTRACTING UNIT
204
SIGNAL PROCESSING UNIT
205
SECOND FRAME MEMORY
206
ADDITIONAL INFORMATION EMBEDDING UNIT
207
IMAGE MEMORY
IMAGE FORMING UNIT 300
208
ADDITIONAL INFORMATION ANALYZING UNIT
209
UPDATED INFORMATION GENERATING UNIT
210
CPU
211
ROM
212
RAM
213
WARNING DISPLAY UNIT

FIG. 3

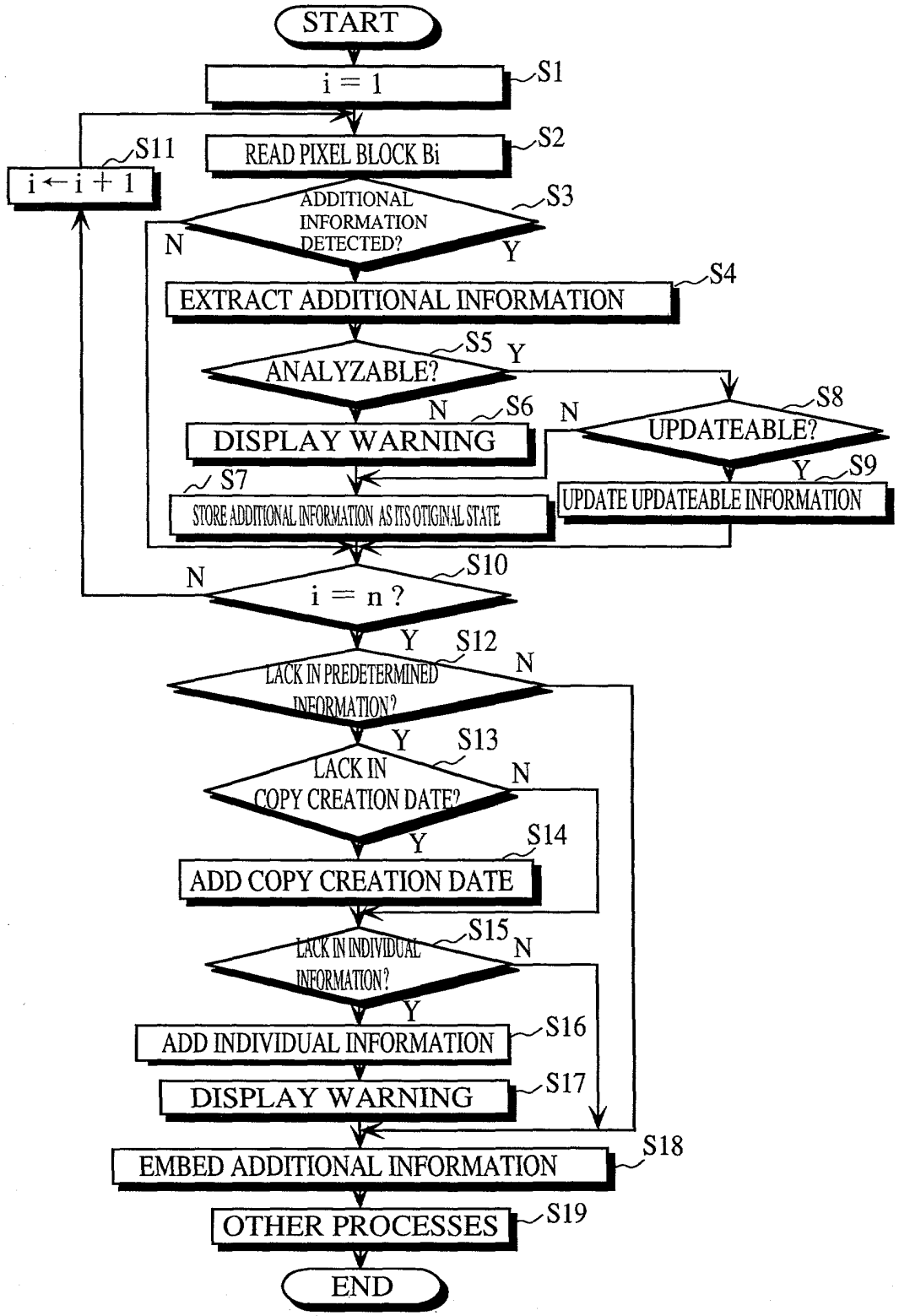

START
i = 1
S1
READ PIXEL BLOCK Bi
S2
i ← i + 1
S11
ADDITIONAL INFORMATION DETECTED?
S3
N
Y
EXTRACT ADDITIONAL INFORMATION
S4
ANALYZABLE?
S5
Y
N
DISPLAY WARNING
S6
UPDATEABLE?
S8
N
Y
S9
UPDATE UPDATEABLE INFORMATION
S7
STORE ADDITIONAL INFORMATION AS ITS OTIGINAL STATE
i = n ?
S10
N
Y
LACK IN PREDETERMINED INFORMATION?
S12
N
Y
LACK IN COPY CREATION DATE?
S13
N
Y
ADD COPY CREATION DATE
S14
LACK IN INDIVIDUAL INFORMATION?
S15
N
Y
ADD INDIVIDUAL INFORMATION
S16
DISPLAY WARNING
S17
EMBED ADDITIONAL INFORMATION
S18
OTHER PROCESSES
S19
END

FIG. 4

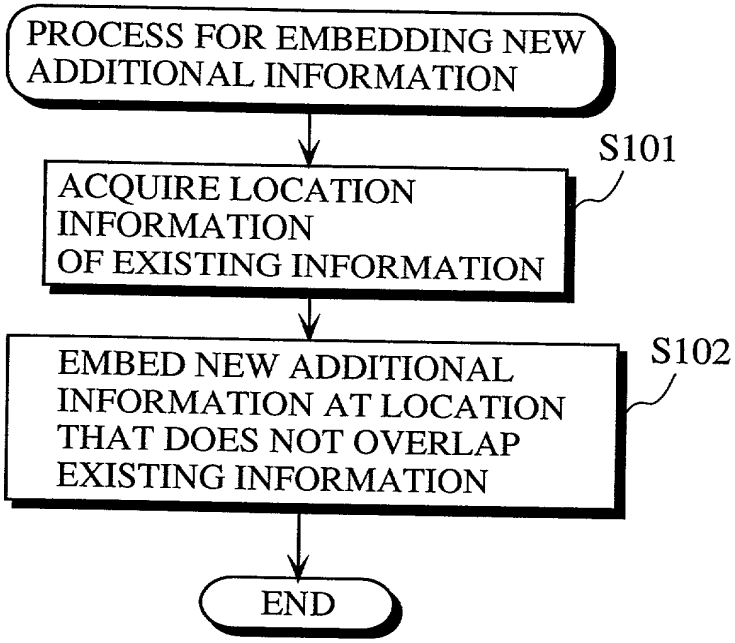

PROCESS FOR EMBEDDING NEW ADDITIONAL INFORMATION
S101
ACQUIRE LOCATION INFORMATION OF EXISTING INFORMATION
S102
EMBED NEW ADDITIONAL INFORMATION AT LOCATION THAT DOES NOT OVERLAP EXISTING INFORMATION
END

FIG. 5A

INPUT IMAGE

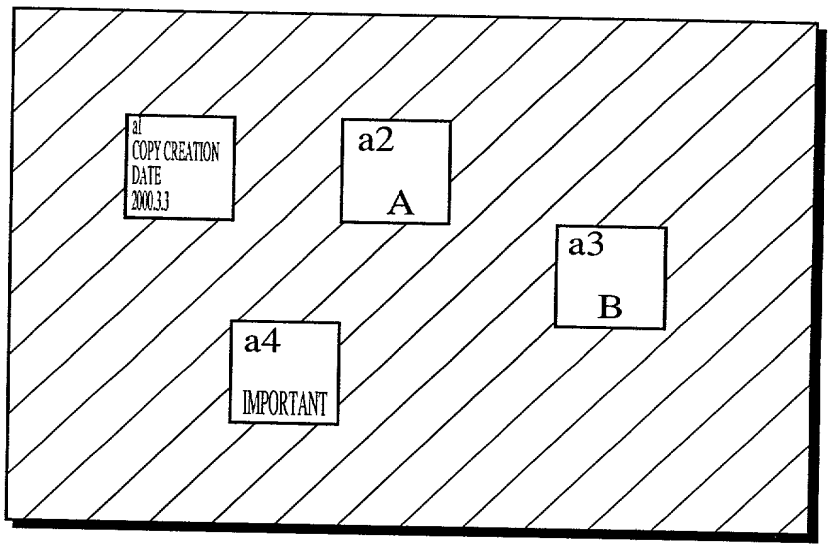


FIG. 5B

OUTPUT IMAGE

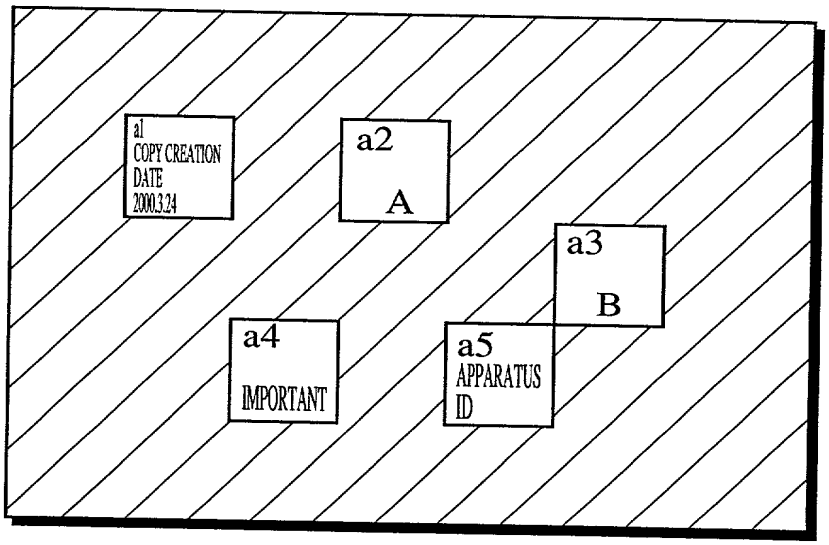


FIG. 6A

INPUT IMAGE

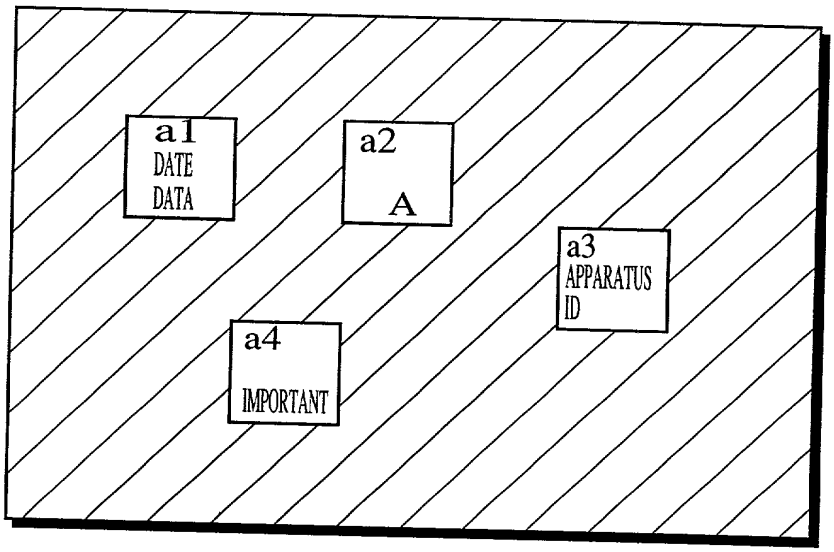
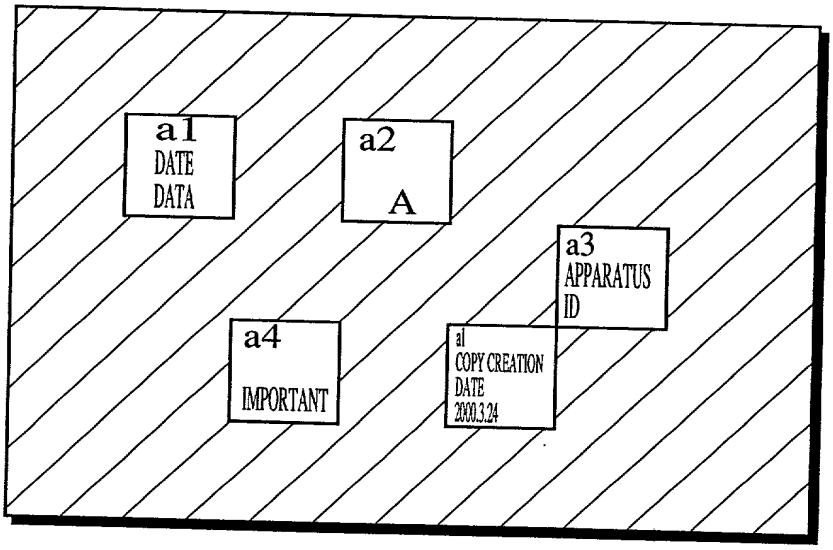


FIG. 6B

OUTPUT IMAGE